



Improvement of the Mechanical and Barrier Properties of Cellulose Nanofibril Films by A Facile Thermal Compression

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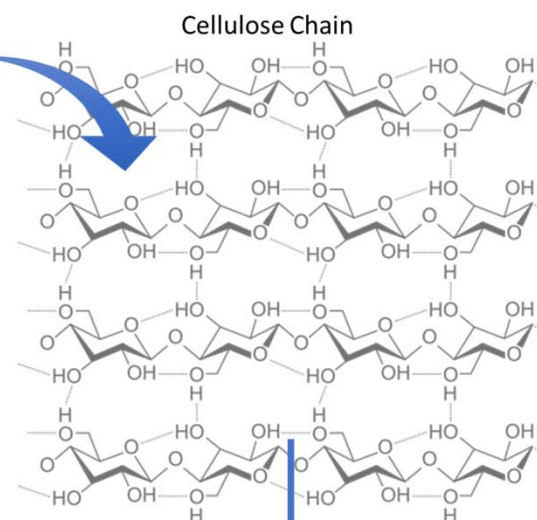


Background

□ Cellulose Nanofiber:



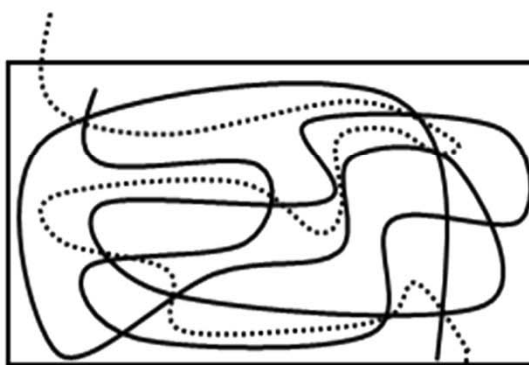
Plant cell



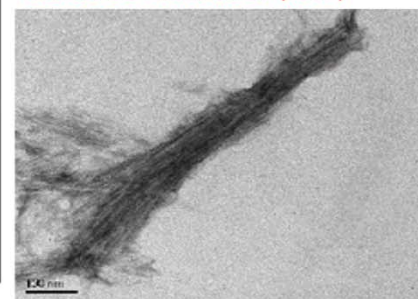
O_2/H_2O

Mechanical
Defibrillation

Very High Oxygen
Barrier Material at
Lower Relative
Humidity



Cellulose Nanofiber (CNF)



Source: Wang, 2020



What we don't know!

How do different drying techniques and thermal compression on dried films affect the mechanical and barrier properties of the cellulose nanofibril films



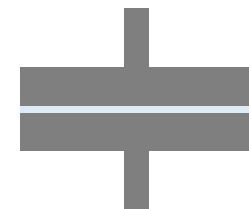
Air



Oven

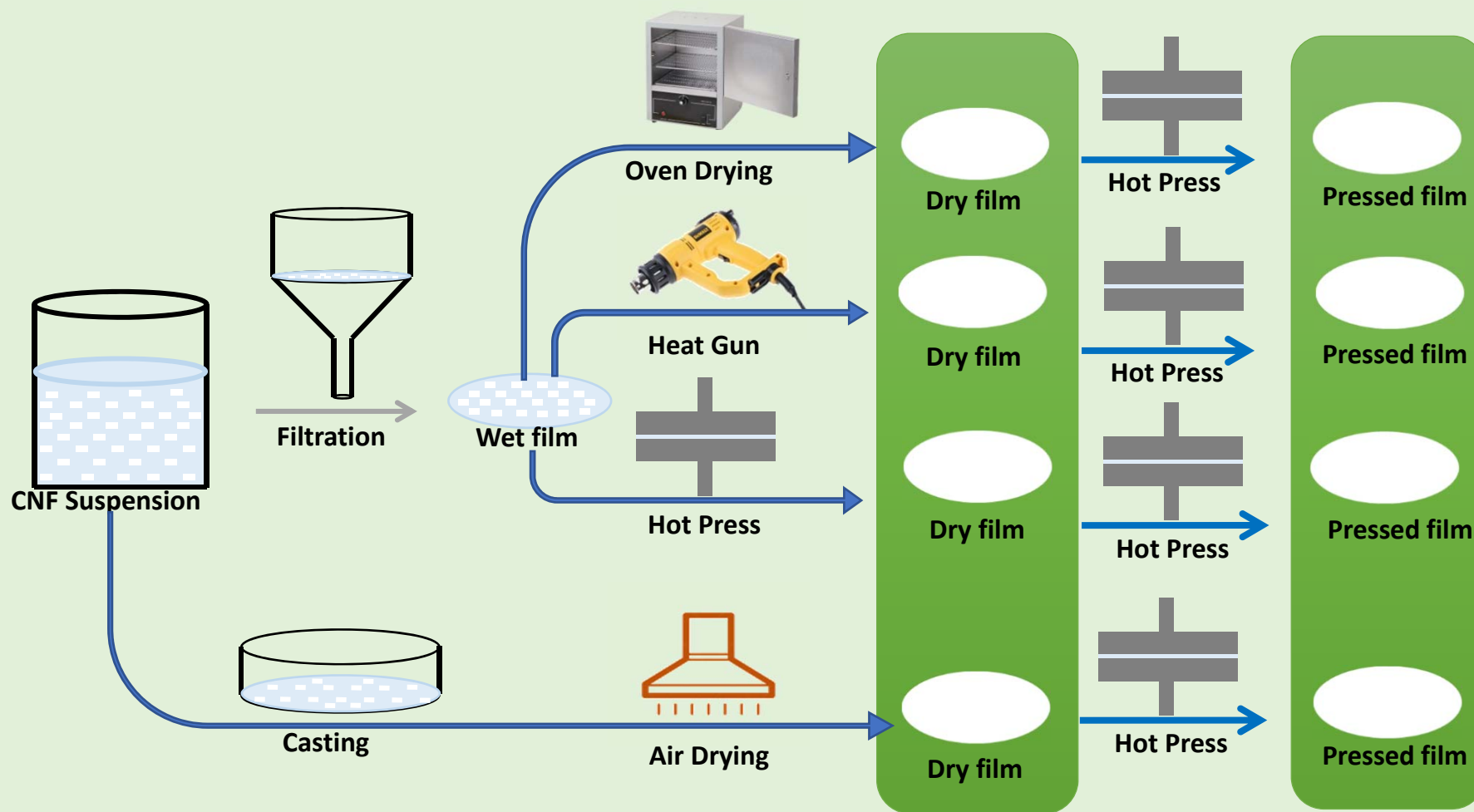


Heat Gun

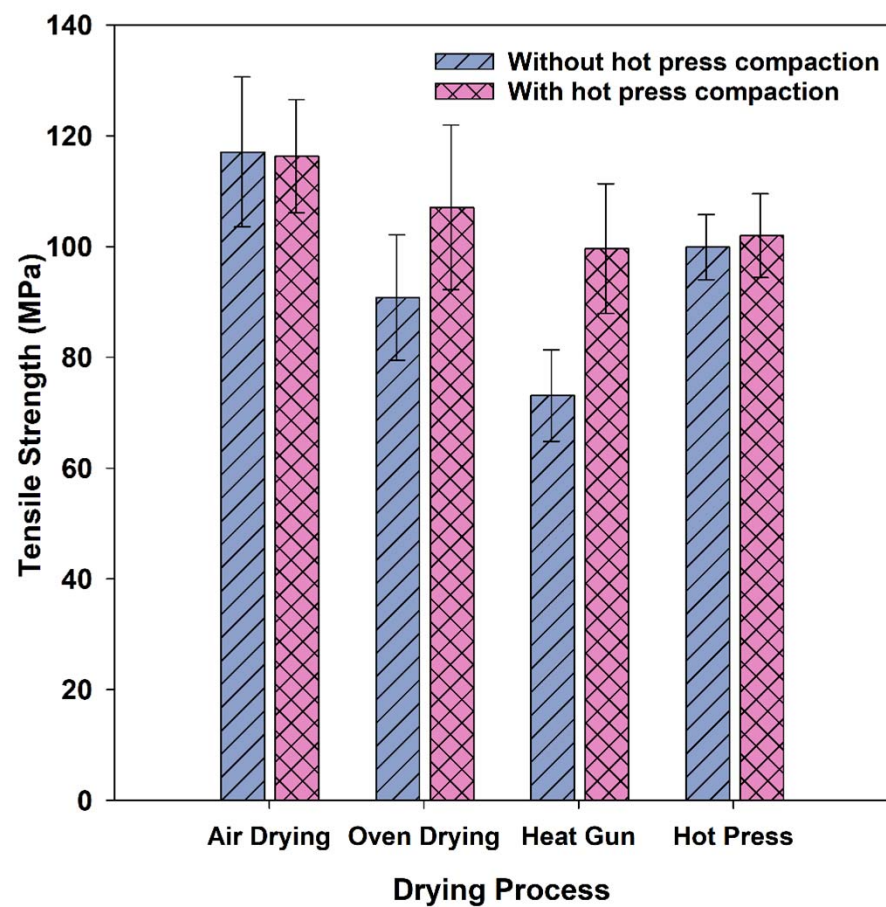
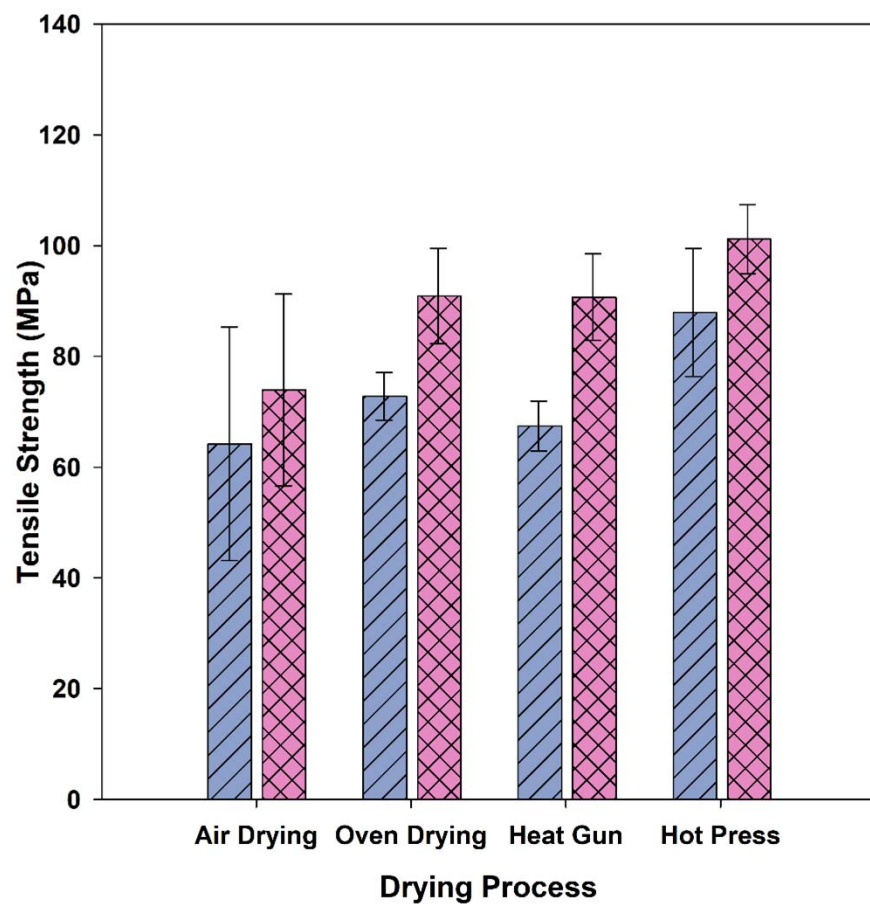


Hot Press

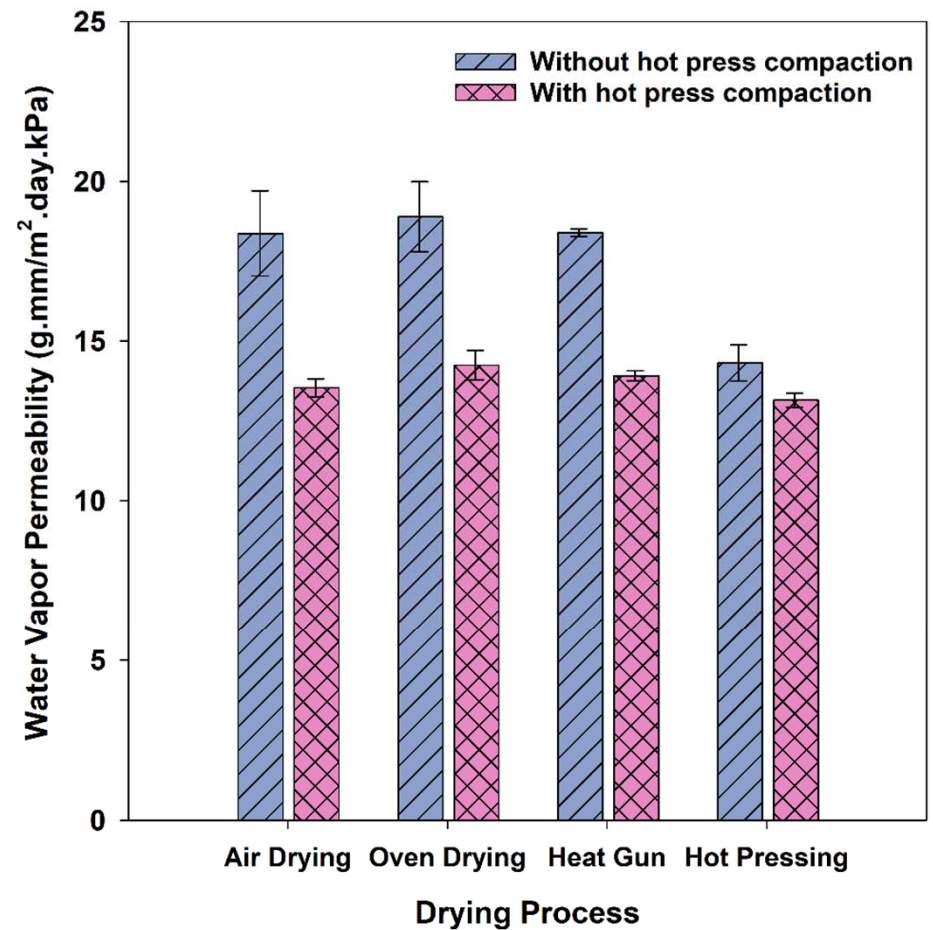
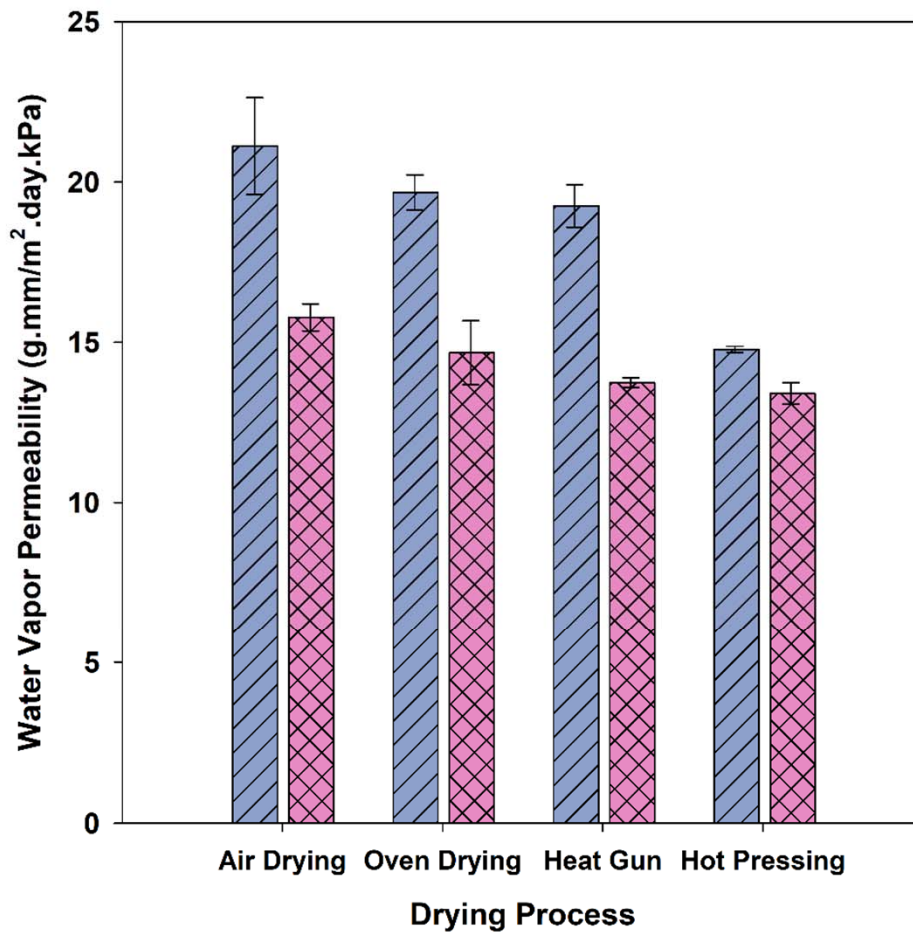
Overall Scheme of the Study



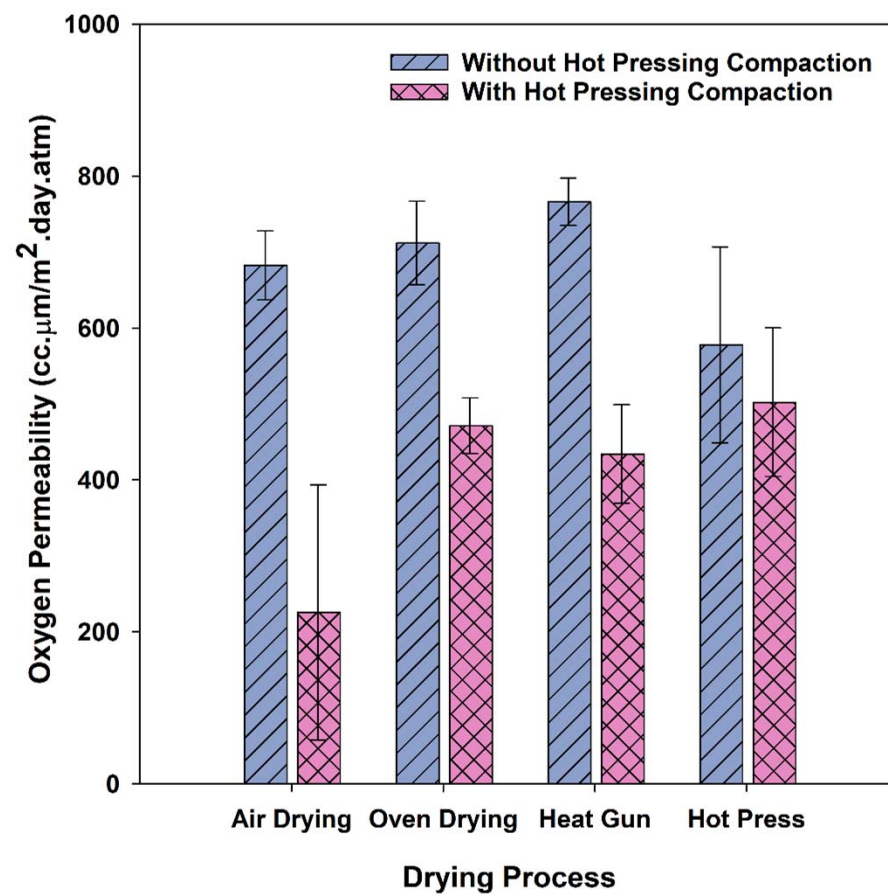
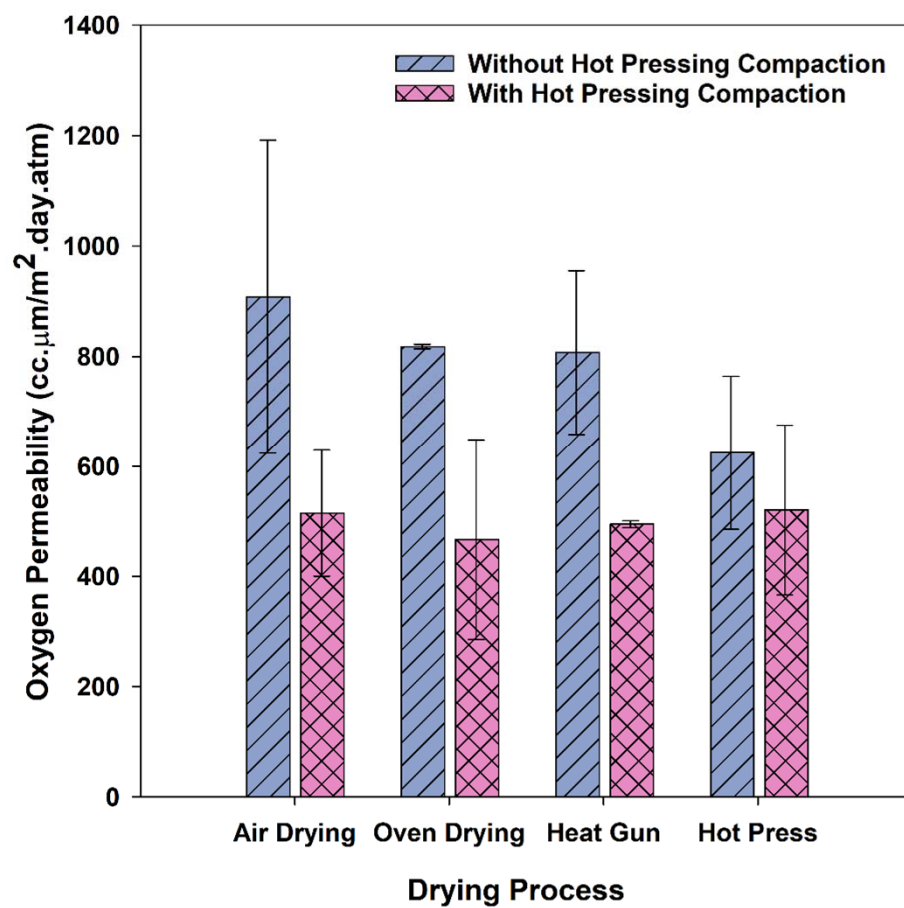
Tensile Strength

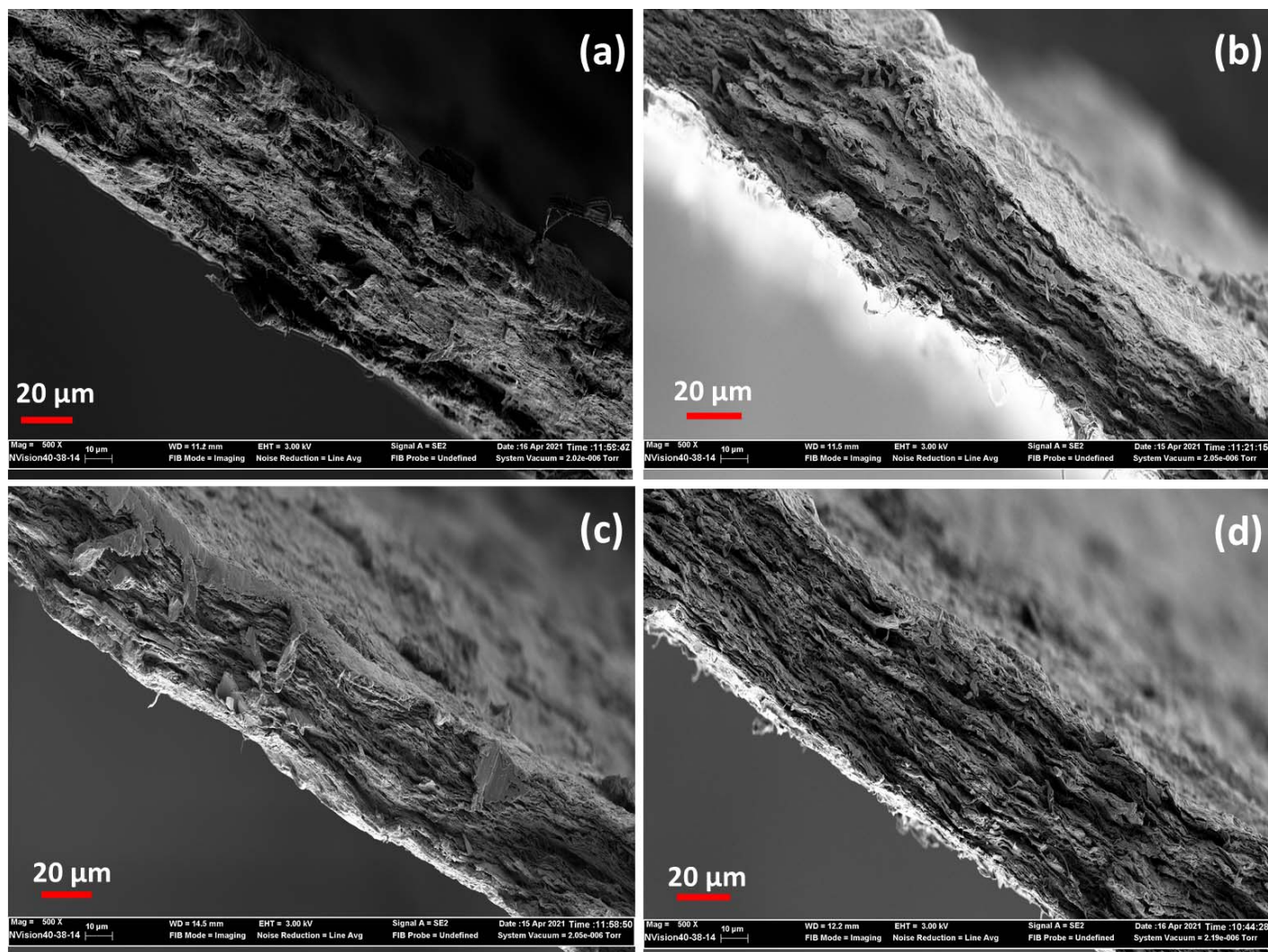


Water Vapor Permeability



Oxygen Permeability





SEM images of cross sections of casted (a), oven dried (b), hot pressed (c), and oven dried + hot pressed film.



Thank You!

Acknowledgement:



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